User Guide

ArcView 3.2a

Table of Contents

Introduction and Conventions

Welcome to the USDA ArcView 3.2a user guide. This document was created to provide an introduction to ArcView and its functionality, as well as a reference guide for future use of ArcView. The document has been formatted as follows to allow easy reference:
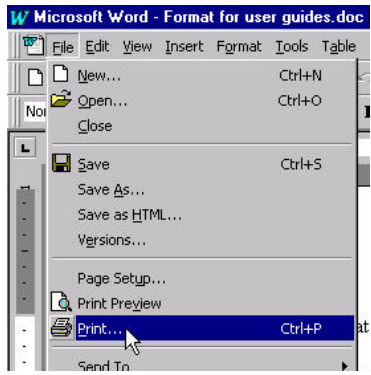

Menu choices are in written in bold in the following format: **Menu>Item>SubItem …** For example, the command used to start printing a file would be written as follows: click on **File>Print**.

The titles of dialog boxes will be written in **Bold**. Clicking on **File>Print** will open the **Print** dialog box.
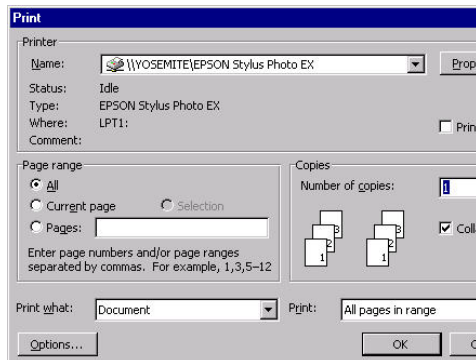

On screen buttons, those that appear in the program window or in dialog boxes, will be written in bold text and in square brackets: **[Button]**. Click on the **[OK]** button to send the file to the printer

The names of fields in a window will be written in *Italics*. The *Name* field displays the current printer.
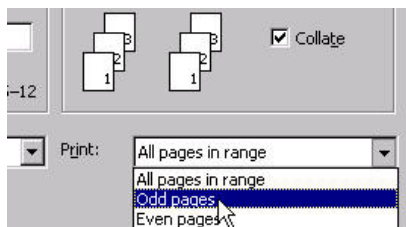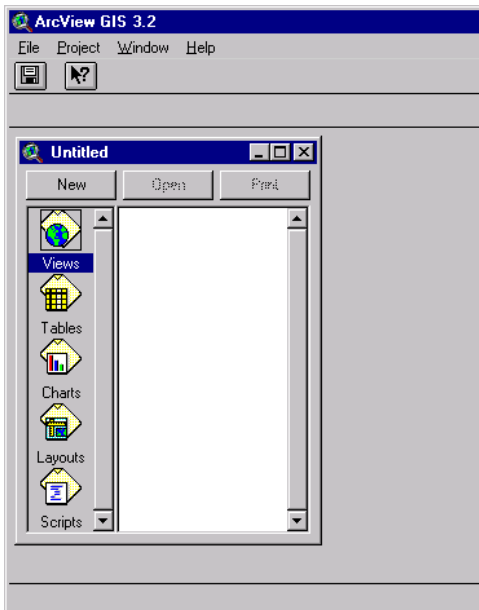

Choices available from lists will also be written in "quotation marks". Click on the arrow of the *Print* field to display the choices available. Click on the "Odd pages" choice to print only the odd pages of a document.

Getting Started
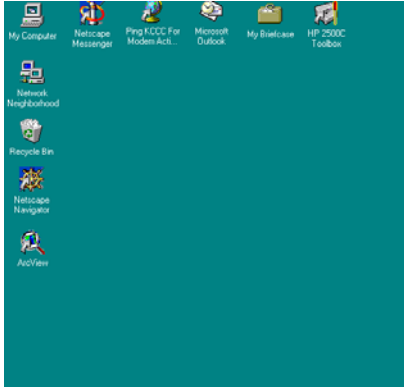
Click on the ArcView desktop icon. If no icon exists, you may also access ArcView by going to **Start>Programs>ESRI>ArcView3. 2>ArcView3.2.**

The example shown is the default starting point for ArcView. This is called the **default** project. A **project** is essentially a road map of all the documents you will be working with. This manual will address the **View, Table** and **Layout** documents. A project can load the data you are working with and remember attributes, including how different types of data you are working with relate to each other. **A project file does not contain the data you are working with.**

The View

Creating a View

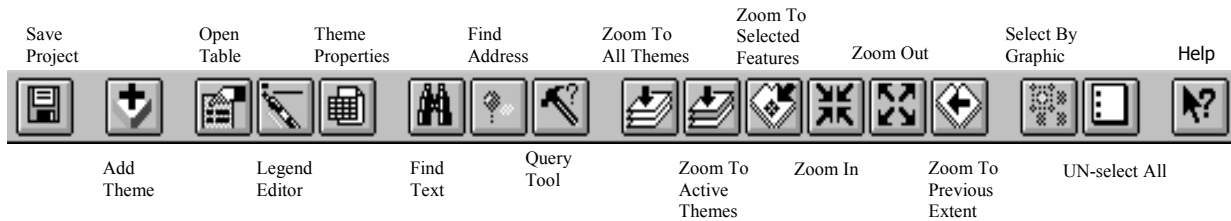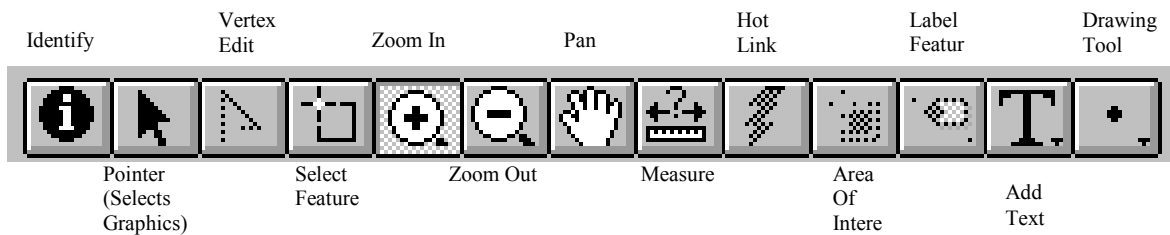The first element of a project is a *view.* You can create a new view or open an existing view by selecting the **view** icon. It is highlighted in the example shown on the left.

The ArcView Button Bar

| Save Project | | Open Table | Theme Properties | | Find Address | | Zoom To All Themes | | Zoom To Selected Features | | Zoom Out | | | Select By Graphic | | Help |

| Add Theme | | Legend Editor | Find Text | | Query Tool | | Zoom To Active Themes | | Zoom In | | Zoom To Previous Extent | | UN-select All |

The ArcView Tool Bar

| Identify | | Vertex Edit | | Zoom In | | Pan | | Hot Link | | Label Featur | | Drawing Tool |

| | Pointer (Selects Graphics) | | Select Feature | | Zoom Out | | Measure | | Area Of Intere | | Add Text | |

All of the buttons shown above have some type of functionality within the view. They will be referred to later in the guide by the names listed above them in the illustrations above. You may also place your cursor over any of these buttons, without pushing them, and the name of each button will be displayed in a yellow box. Additionally, clicking on the **[help]** button and then clicking on a button will bring up a window that gives more extensive information on each button's feature.

Adding Data to a View

Once you have created a new view, you will see a window like the one on the left appear. This is the standard view window that includes 2 parts; the *map view* (the large white screen on the right) and the *Table of Contents*, which is the gray box to the left. These displays will both be blank, no data has been added yet.
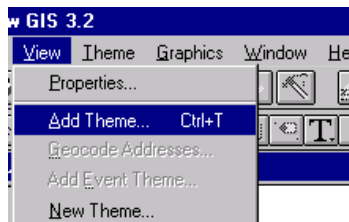
Once a new view has been created, data may be added to the view. Different data layers in ArcView are referred to as *themes.* Themes can consist of points, lines or polygons when they are *Feature Data Sources.* They may consist of imagery files (typically .sid, .tif or .jpg) when they are *Image Data Sources*

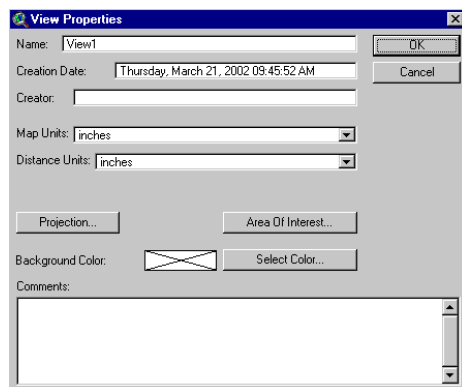There are two ways to add a theme to a view. **View>Add Theme** may be selected from the menu at the top**.** The **[Add Theme]** button (example below) may also be selected.

Both will bring up a menu that will allow you to browse through your computer for data to add to the view.
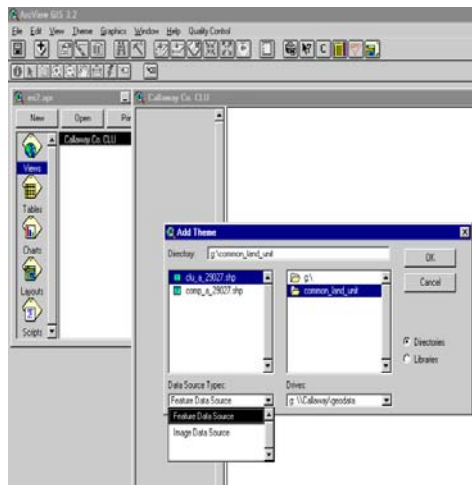
View Properties

By choosing **View>Properties,** you may adjust properties within the view such as the *view name, map units, projection* and *units of measure.* This will be helpful when attempting to measure ground distances with the GPS

Using the View Table of Contents

Once a theme has been added to the view, you will notice that the name of that theme will now appear within the *table of contents* on the left. There will also be a box to the left of the theme name. If there is not a check in this box, click on it until one appears. You have now turned this theme on within the view, and will see data appear in the map display on the right as well.
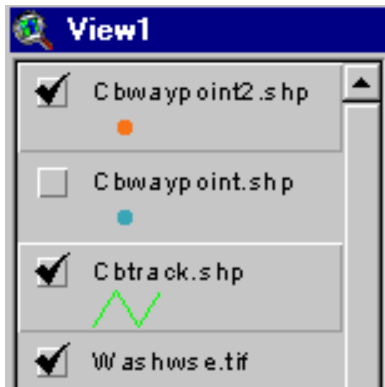
Once you have added your desired themes to the view, the screen should appear similar to the examples on the left. This will vary on the number of layers and types of data they contain. At this point it is possible to arrange the manner in which your themes are layered. The themes will be layered on top of each other, starting at the top and going to the last theme on the bottom. You may click on a theme and drag it in order to change how it is layered. Imagery layers should be on the bottom, as they will provide a background. The different data layers should be arranged so that they all are visible.
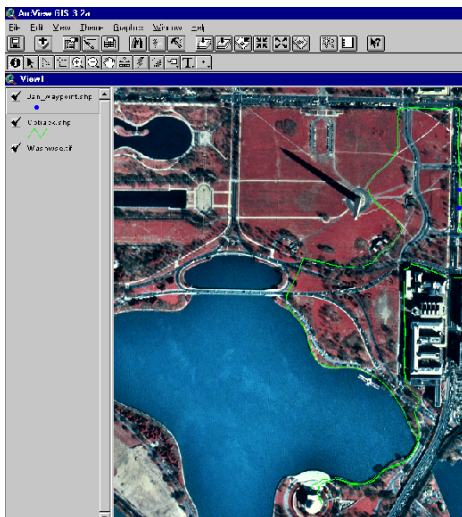

Themes may also be made active or inactive at this point. An active theme will have a box appear around it. More than one theme may be active. You may do this by holding down the **[shift]** key and then clicking in the area around the theme's name. Themes are made inactive in the same manner. Activate themes when any type of editing or querying is to be done. In the example on the top, the themes *Cbwaypoint2, Cbtrack and Washwse* are all turned on, as indicated by the check in the box next to them. *Cbwaypoint2 and Cbtrack* are also active, as indicated by the box around them.

Examining Your Data

This section explains features within the ArcView button and toolbars that allow you to view and obtain information from the data that has been loaded.

Zoom
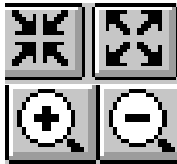
The **zoom in and zoom out tools and buttons** allow you to adjust scale within your view. The **[zoom]** buttons will zoom in or out at a constant rate. The **zoom** tools allow you to choose an area of interest that will be zoomed in to or out from. The **[zoom to previous extent]** button is useful when you have accidentally zoomed too far in or too far out.

Pan
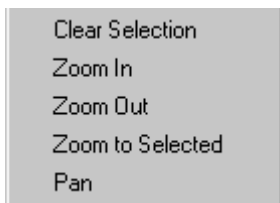
The **Pan** tool allows you to adjust the area within your view, without adjusting scale. Once the tool has been selected, click within your view, and move the mouse around while holding the button down. The view area will be changed accordingly. Right clicking within the view will bring up a menu that will allow you to utilize these tools as well

Identify
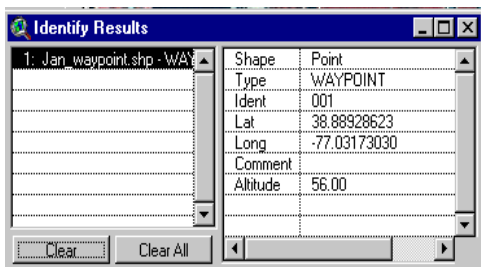
The **[identify]** button will bring up attribute information for any feature that you click on, as long as the theme associated with that feature is active. An example is shown on the left.

You may obtain information for more than one feature at a time. As more features are selected, they will be displayed in the left window. You may browse between the information for each feature you have chosen to identify, and remove as many as you wish from the identify results window using the **[Clear]** or **[Clear All]** buttons. This information is obtained from the theme's *table,* which will be discussed shortly.

Select Feature

The **select feature** tool is also quite useful. This tool allows you to select single or multiple features for editing or identifying purposes. You may select a feature by clicking on it, or by drawing a box around it. Once a feature is selected, it will appear highlighted. In the example shown, you can see that the point on the top has already been selected.

Multiple features may be selected by holding down the *shift* key and clicking on each feature, or by drawing a box around the features to be selected. This example shows a box being drawn around multiple features. After this box is drawn, the blue dots on the bottom will appear yellow, meaning that they also have been selected.

To deselect a feature, click on it. If multiple features are selected and you wish to deselect only one or a few of many, hold down the **[shift]** key while clicking on the feature. You may also choose the **[unselect all]** button. This will deselect all features.

Symbolizing Themes

It is possible to change the way that features within a theme are displayed in your view. To adjust this, you can simply double click on the theme's symbol within the table of contents.
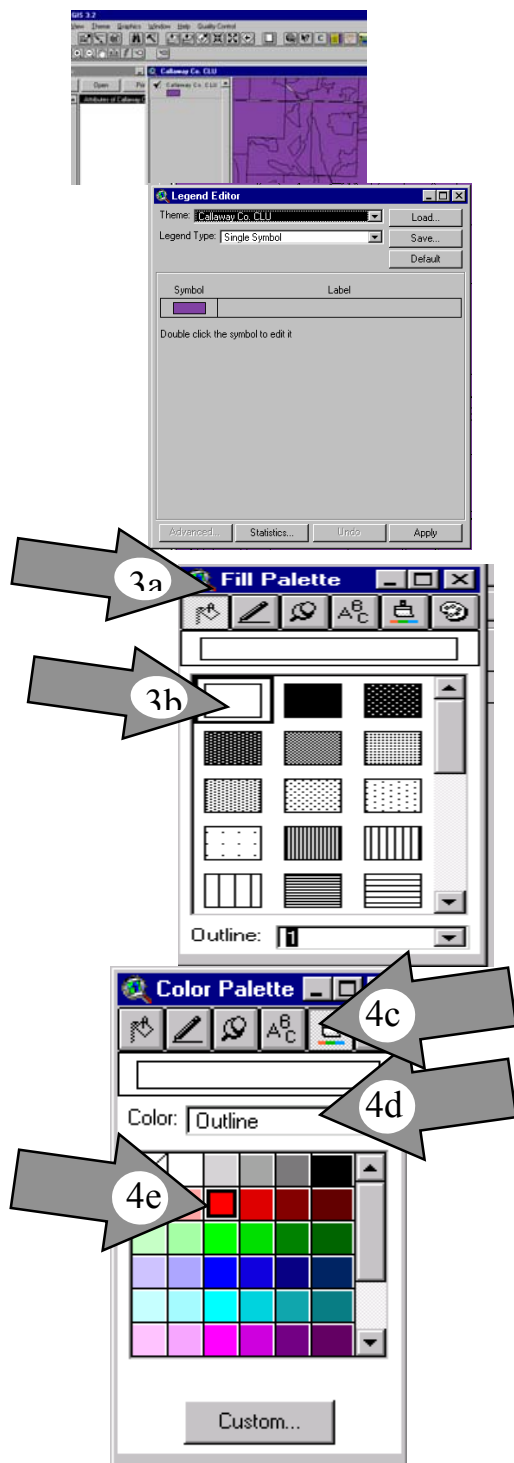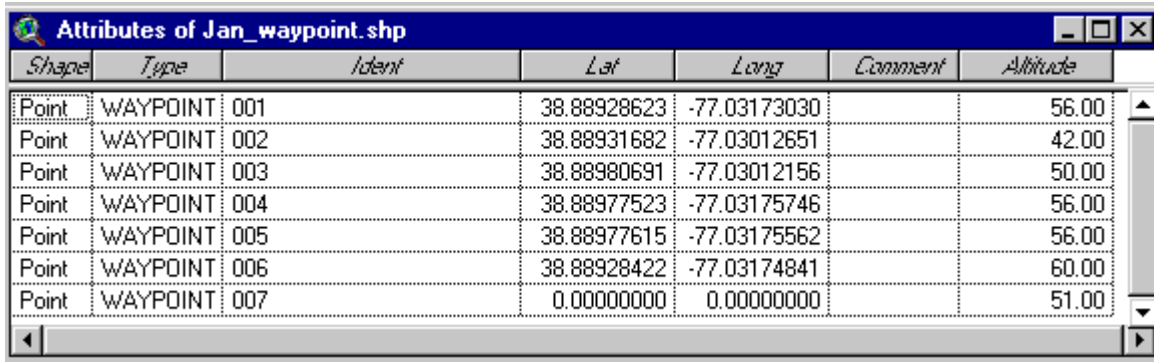
In the example shown, the theme is displayed as a purple polygon. Once the polygon has been double clicked on, the **Legend Editor** window will appear. You can double click on the symbol to edit it. You will then see the **Fill Palette** window displayed (3a). At this point you can chose the type of fill for the polygon (3b). You can also choose how thick the outline of the theme's features will be. This tool's options will vary depending on whether you are adjusting the properties for a point, line or polygon feature theme.

By clicking on the **[paintbrush]** button, you can activate the **color palette** (4c). You may adjust the outline and fill colors of features (4d). There are a number of choices for different colors to use within the palette (4e). You may also create your own custom colors by adjusting Red, Green And Blue values.

When adjusting the symbol properties for polygons, you will most often adjust the *outline width* and *color, fill color and fill type*. If you are changing symbol properties for line themes, you will adjust the line *thickness, color and style*. Finally, if you are changing the symbol properties for point themes, you can select the point *symbol, size and color*.

The Table Document

In GIS, geographic data sets have a *spatial component* (a map) and a *tabular component* (the attribute table).

Accessing the Table Document

There are different ways to access a theme's table document.

You may also access the themes' tables from within your view. You may select **Theme>Table** from the menu.
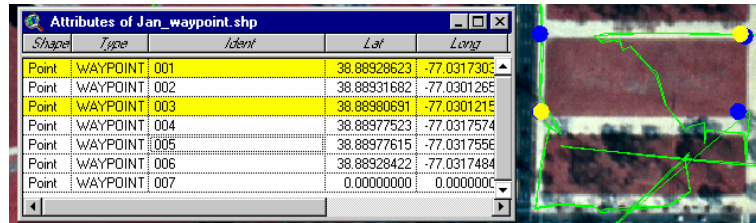
You can access a theme's table by making sure the theme is active, and then selecting the **[Open Theme Table]** button. Once you have opened a table, you will see a window appear that looks like the example shown above.

Tabular data can be added directly to the project main window (select **Window>(your project)** from the pull down menu within the view). From the **project** window, you can select *Tables*. If you select the **[New]** button, you should see a file listed that says *Attributes of* (The file names for the themes you are working with).
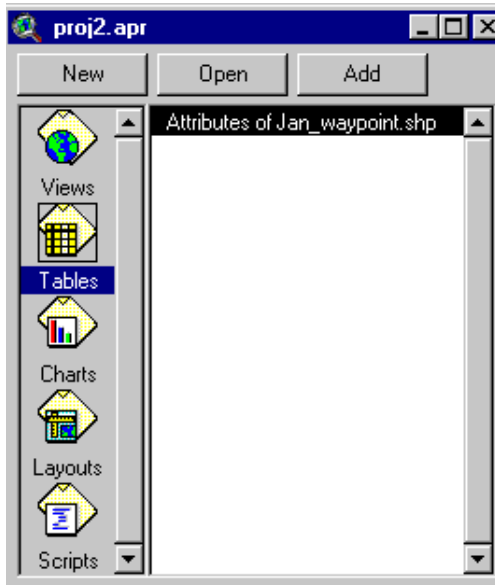
Contents of the Table

The table contains **fields** (columns) of attributes such as *shape, type, coordinates*, etc. Each **record** (row) of the table corresponds to one feature (point, line or polygon) of the theme. Within the table, you can also highlight items by clicking the field name. Once highlighted, this is the active item. You can also change the order of the items by clicking and dragging the item from its current position to another position.


If you have the *table* and *view* windows open simultaneously, you can select features within the table and notice that they become highlighted within your view as well. This illustrates the relationship between the spatial and attribute data sets. On the example shown above, notice how certain points are highlighted within the view and table simultaneously.

Tables are for more than just display and query; they can be used to create summaries and statistics for a variety of purposes. While not a statistical package, ArcView has some basic summary and statistical operation.

In addition, you may want to modify data that exists in a table. Changing attributes and adding new fields to tables are things you can do in ArcView.

Editing Tables
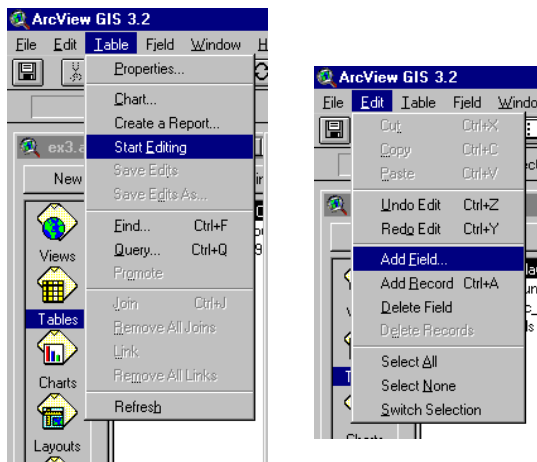
Once your table is open, use the **Table>Start Editing** menu option to make the table ready for edits. Here, you can Use the **Edit>Add Field** option to add an attribute field to the table, or the **Edit> Add Record** option to add a record to the table. You will be prompted to enter properties for the new fields and records you create.

You may also edit values for records inside the table, using the **[Edit]** button.
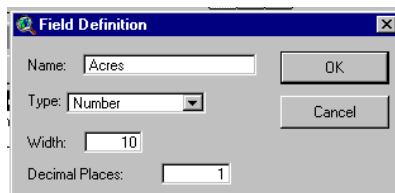
Once you have clicked on the **[Edit]** button, you may select any record's value in any field. You will then be able to change it. In the example shown, the *Ident* value for a particular record has been chosen for editing. In the illustration on the bottom, the *Ident* value has been changed to "999" from "004."

Once you have finished editing the values you want, you may save your edits, either overwriting the existing table document, or saving the changes to a different database file. You may also discard your changes.
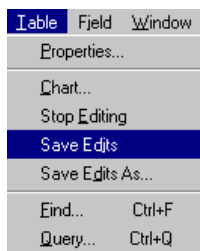
While you may save your edits at any point during the editing process, as soon as you select **Table> Stop Editing**, you will be asked if you want to save your edits or not. If you choose not to save your edits, all changes you have made to the table will be lost.

Queries

Attribute queries can be performed based on the Theme Attribute tables. They can be initiated from both the View document and the Table document. The **Query Builder Tool** is used for this operation.

The **Query Builder tool** works on the active theme, if initiated from the View GUI, or the active table if initiated from the Table GUI.
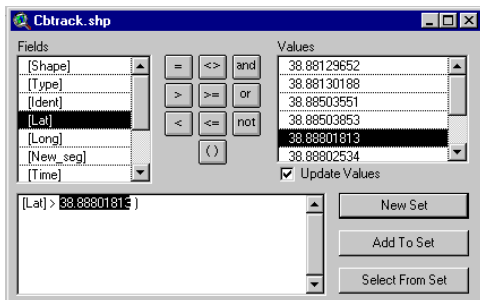
Here is an example of a query window. The first step is to select an option from the *Fields* of the existing table. You will want to make sure that the *update values* option has a check in the box next to it. Once you have selected a field, the values of all the different records within that field will appear within the *values* window. Before you select a value, select an *operator* by clicking one of the buttons seen in the middle of this illustration. These buttons let you chose records which have a value equal to, not equal to, lesser than, greater than, etc. within the selected field.

Once you have selected your *field, operator and value,* clicking on the **[New Set]** button will select the records which match the criteria you have chosen. These features will appear highlighted within the view. You may also look at the table to see which records were selected.

The **[Add To Set]** button will allow you to select more records in addition to the ones you have already chosen.

The **[Select From Set]** button allows you to narrow your search, selecting records based on new criteria. It will only select these records from an existing set, which was created by previous queries.

Syntax errors are very common when working with queries. They are usually created when items are entered out of order, or values are manually changed. A good way to avoid getting a syntax error is to remember the steps in building a query: First, chose an option from the *Fields* list, then chose your *operator*, and finally chose a value from the *Values* list and select either **[New Set], [Add to Set]** or **[Select From Set.]**


When building a query within a theme that has many records, the **[promote]** button will be very useful. If you have your table open and active, clicking on the **[promote]** button will bring all the selected features to the top of the table. The result will look like the example shown.

Creating a Layout

One of the exciting aspects of GIS is the ability to perform analysis and then produce hard-copy maps of the results. This can be accomplished using the **Layout** tool.
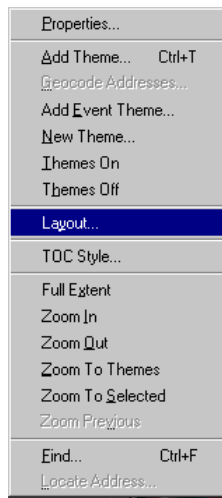
The maps that are displayed and printed in the Layout are based on views in your project. Use the **zoom** features, and also adjust the way themes are layered and displayed until you are satisfied with the appearance of your view. Now you will be ready to create a layout.

First, choose the **View>Layout option** from the menu on the top of your screen..

You will then see the **Template Manager** window. There will be a list of different templates that you may use in designing your layout. The template you wish to use will depend on what data you are including in your format. When you have found the template that you wish to use, choose "OK. *"*
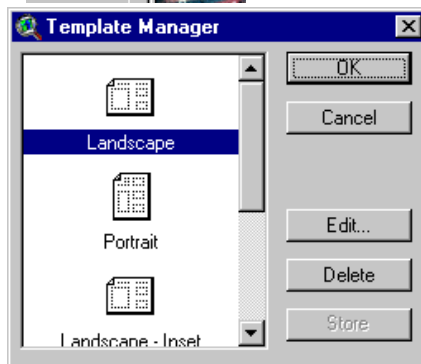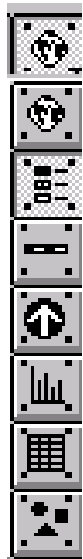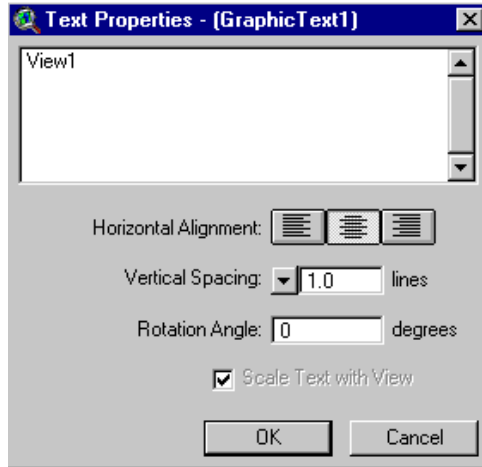
At this point, a new window should appear within your view, entitled **Layout 1.** You may maximize this window so that you can see the layout in more detail.
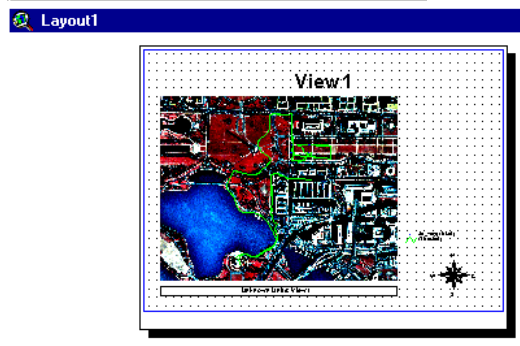
At this point you will notice that the menu choices and toolbars at the top of the screen have changed. This is because you are now working within a *Layout* document within your project (as opposed to a *view* document or *table* document.) If you go to your main project window and select the *Layout* option, you will notice that you will now have *Layout 1* listed.

Depending on the template you selected from the **Template Manager**, you will have different features displayed on your layout. These features include a *title, legend, north arrow* and *scale bar*. All of these features may be edited. To do this, double click on any of them. The first time you click on them, 4 dots will appear around them (see example.) Once you double click, a *properties* window will appear. The options within this window will vary depending on which feature you are editing. In the example shown, the Title of the Layout is being edited.

If the template you are using did not include a feature that you wish to display within your view, you may add features using the toolbar displayed on the left. Clicking on the globe icon and holding it down will bring up the full list of features that you may add. They are, from the top to the bottom:
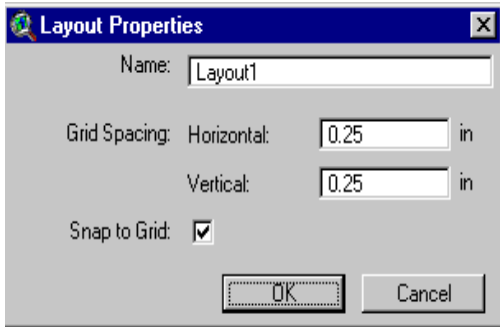
1. **View Frame**
2. **Legend Frame**
3. **Scale Bar**
4. **North Arrow**
5. **Chart Frame**
6. **Table Frame**
7. **Picture Frame**

When you have a feature selected, you may also relocate it anywhere within the view. As a default, the layout will use a *Snap To Grid* feature. If you click on the **[Layout Properties]** button shown here, you will see a new window appear.

Once you have opened **the Layout Properties** window, you may adjust the grid spacing. It is also possible to activate and deactivate the *Snap to Grid* function. As you adjust the grid spacing, you will notice the changing of the blue dots in the background of the layout window will change accordingly.
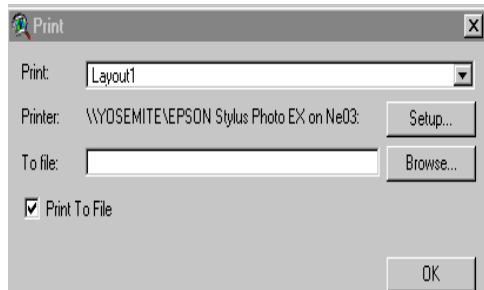
Once you have completed your layout to your satisfaction, you will be ready to print. Clicking on the **[Print]** button will bring up a **Print** window. This window allows you to choose what exactly you will print, and it also allows you to adjust the printer setup before doing so. A *Print to File* option is also included. Selecting this option will open a window which assists you in creating a new graphics file of the layout.

Final Thoughts

- When you save your project, it will be saved as an .apr file. This .apr file will not contain the data (themes) you have added. It merely remembers how the different layers were loaded and related to each other. Therefore, it is very important to set up a file structure where your data (.shp, .tif, .sid, etc.) files are saved regularly and will not be moved. Otherwise, your project file will not load properly.

- The tools shown here are very few when compared to the overall functionality of ArcView. The best way to become familiar with ArcView is to explore the different features in order to get a better understanding of their functionality.

- ArcView's **Help** function is quite helpful. It is a good idea to use it in order to explain tools in more detail. Using this tool when you have the time will give you a more in-depth understanding of all ArcView can do.